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# Smart Bed

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## **SMART BED**

### **ABSTRACT**

A smart bed can improve a user's sleep experience through the use of data from temperature, humidity, motion, and brainwave sensors. These sensors can provide smart beds with information to make real-time adjustments to a user's sleeping conditions that do not require the user to make any manual adjustments.

### **BACKGROUND**

Humans spend about one-third of their lives asleep and, while everything else in the world has become more advanced, beds have remained largely unchanged in the past century. Mattresses can be firm or soft, but they do not leverage any real time information about the user to make smart decisions. Phones and sensors can now detect so much personal information about their users, but this information has not been leveraged for beds. Furthermore, there exist products in general that read brain waves to collect sleep data, but this information is not integrated into beds. For example, most people at some point have woken up in the middle of the night to manually change the temperature of their environment because they felt too hot or too cold. This, however, is something that can automatically be detected and adjusted. This disclosure works towards creating beds in the new technology-driven world and making sleep experiences even smoother with smart beds.

### **DESCRIPTION**

The goal of this disclosure is to create a smart bed that updates the user's environment according to the user's needs and without the user's intervention. This bed/mattress would have

temperature, humidity, motion, and brainwave sensors that will be used to update the user's bed accordingly.

The temperature and humidity sensors will be used to detect if the user is too hot, sweating, or too cold. This information would then be used to adjust the temperature of the bed, mattress, or bed sheets accordingly.

The motion sensors will be used to detect whether a user is uncomfortable. The smart bed/mattress will use this information to vary the firmness of the mattress to find an ideal spot for the user while the user is asleep. The motion sensors can also collect data so that the user will know which days were better sleep days. This information could further be integrated with a nutrition application on the user's phone or other mobile device, and the smart bed could suggest which food products the user should consume for better sleep based on their sleep activity.

The smart bed will also be integrated with a calendar application. The bed will use the calendar data to detect when a user should leave for a calendar event and also when the user should wake up. This information, integrated with brainwave sensors, can be used to set an ideal wake up time for the user so that the user does not wake up in the middle of a REM cycle.

The advantage of using the smart bed is that the user will have a much better sleep experience because the combination of these sensors, data, and adjustments should provide the user with ideal sleeping conditions.